

Important Bacterial and Viral Infections in Patients with Hemodialysis

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Received 2016 June 25; Accepted 2016 July 05.

Keywords: Hemodialysis, Infection, ESR

Dear Editor,

Hemodialysis (HD) is the most common treatment of the end stage renal disease (ESRD). Bacterial infections are very common in patients with ESRD (1). Infection has become a main reason of death and is the second most common cause of morbidity in patients who need HD. The frequency of mortalities among patients with dialysis treatment is 6.5 - 7.9 times higher than that of the normal population (1, 2).

There are several risk factors for the development of bloodstream infection in patients with HD. These risk factors include the use of a central venous catheter (CVC), having diabetes mellitus, hypoalbuminemia, and anemia, and female gender. Also, colonization by methicillin-resistant *Staphylococcus aureus* (MRSA) is effective in this process (2).

Hemodialysis patients with arteriovenous fistula (AVF) have a significantly lower death rate than patients with dialysis catheter, which is related to immune activation (2, 3).

Infection has become a main reason of morbidity and is the second most common reason of death in the patients with HD (2). At the moment, *Staphylococcus aureus* is the most important isolated pathogen causing infection in such patients (2). These patients are affected by staphylococcal infections due to their low immune activation, multiple needle punctures and skin colonization (2).

The most important isolated bacteria in blood cultures of hemodialysis patients are Gram-positive bacteria. Most of the infections are caused by *Escherichia coli*, followed by *Staphylococcus coagulase negative* in mix infections (2, 3).

Also, hepatitis B virus (HBV) and hepatitis C virus (HCV) infections and bacteremia are the main comorbidities in hemodialysis patients (3).

Frequency of hepatitis G virus (HGV) in normal people is very low, but this virus is more common in patients with hepatitis. This virus is a member of Flaviviridae family. Also, a relative frequency of HGV in patients who need

HD is very high. The HGV role in pathogenesis is not clear (4).

A frequent human polyomavirus is BK virus (BKV), which infects up to 90% of the general population. It is determined with little clinical significance and with different epidemiological patterns of infection. Immune suppression can be considered the important risk factor for BKV reactivation (5). Patients with peritoneal dialysis (PD) or HD are at high risk of BKV infection (5).

Finally, a study in our country proved that *Blastocystis hominis* and *Entamoeba coli* among intestinal parasitic infections had the highest prevalence in patients undergoing HD, respectively (6).

Acknowledgments

The authors would like to thank the infectious diseases research center of Yazd Shahid Sadoughi University of Medical Sciences for their kind assistance in this letter.

Footnotes

Authors' Contribution: All authors have contributed similarly.

Financial Disclosure: We have no financial interests related to the material in the manuscript.

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